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## Department of Energy

Richland Field Office

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HANFORD SITE ENVIRONMENTAL REPORT FOR CALENDAR YEAR 1991 (PNL-8148),  
PACIFIC NORTHWEST LABORATORY (PNL), RICHLAND, WASHINGTON, JUNE 1992


Enclosed is a copy of the Environmental Report for 1991 for the U. S. Department of Energy (DOE), Richland Field Office (RL), Hanford Site. The purpose of the report is to present summary environmental data. These data characterize site environmental management performance and confirm the success of the continuing efforts to achieve compliance with environmental standards and requirements. In addition, significant environmental programs and efforts are highlighted.

This report is prepared and published annually for distribution to local, State and Federal government agencies; Congress; the public; and the news media. The report was prepared for RL by Pacific Northwest Laboratory.

Also enclosed is an addendum summarizing significant changes to our compliance status, current issues and actions, and conformance to environmental permit requirements for the period January 1 through April 1, 1992. We prepared this addendum as part of our continuing efforts to upgrade the quality of the report.

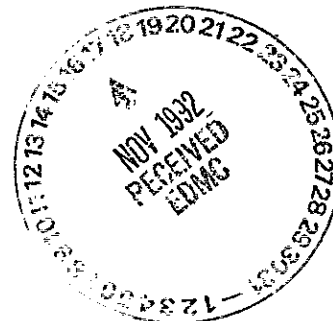
If you have any questions or desire additional information, please contact R. F. Brich of the RL Quality, Safety, and Health Programs Division at (509) 376-9031.

Sincerely,

*for*   
John D. Wagoner  
Manager

Enclosures:

1. Hanford Site Environmental Report for 1991
2. Compliance Summary



**ENVIRONMENTAL COMPLIANCE SUMMARY  
U.S. DEPARTMENT OF ENERGY'S HANFORD SITE  
JANUARY 1, 1992 TO APRIL 1, 1992**

Compliance issues and activities relative to operations at the Hanford Site for 1991 are discussed in Chapter Two of the attached report. The following summary supplements Section 2.2, to address compliance with major environmental statutes for the period January 1, 1992 to April 1, 1992.

**1. COMPLIANCE STATUS**

**COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA)**

**Expedited Response Actions**

Expedited response actions for three waste sites are in progress at the Hanford Site. Status for the period from January 1 through April 1, 1992, is given below:

Excavation of the 618-9 Burial Ground was completed and 3,000 L (800 gallons) of non-contaminated solvent were shipped off-site to a permitted hazardous waste disposal facility. Evaluation of the trench debris to determine if low-level burial ground acceptance criteria can be met before disposing the remaining debris is underway.

All field activity for the 316-5 Process Trench sediment removal has been completed and approximately 7000 cubic yards of contaminated soil were removed from the active portion of the trenches. An independent third party is validating the soil sampling data. The final report will be issued to the regulators in July 1992.

Vapor extraction of carbon tetrachloride from the vadose zone in the 200 West Area began in February, 1992 at the 216-Z-1A crib site. The vapor extraction system is designed to remove carbon tetrachloride from the soils above the groundwater, thereby removing the source that forms a groundwater plume.

**CERCLA - Reportable Releases**

There were three releases reported under the CERCLA reportable quantity (RQ) requirements between January 1, 1992 and April 1, 1992. All three releases involved spilling small amounts of automobile anti-freeze (ethylene glycol) on the asphalt roadway. Absorbent material was applied to the spills and the contaminated mixture was disposed of according to the proper regulation. Although the spills exceeded the CERCLA RQ of one pound, there was no impact to personnel or the environment.

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### Lawsuit Filed

On April 7, 1992 Legal Advocates for Washington and Heart of America, Northwest filed a citizen lawsuit against DOE and WHC under CERCLA. The suit alleges that releases of hazardous substances and wastes have and are occurring from Tanks 106-C, 105-A and connected piping, ventilation, infrastructure, duct work and other tanks. The lawsuit further alleges that the appropriate agencies were never notified of the releases. The notice of intent filed in January contained an allegation that RI/FSS were not being started in a timely manner; however, that allegation was not included in the lawsuit.

### EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (EPCRA)

There were no new compliance issues identified regarding the Emergency Planning and Community Right-to-Know Act during the period from January 1, 1992 through April 1, 1992.

### RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

#### Enforcement Actions

No enforcement actions have been taken by any off-site regulatory agency between January 1, 1992 and April 1, 1992. All corrective actions from earlier enforcement actions have either been completed or are scheduled for completion during the fiscal year 1992.

#### Hanford Part B Permit

On January 15, 1992, the Washington State Department of Ecology issued a draft permit for the Hanford Site for public comment. When issued, the Hanford Site Facility Permit will provide the foundation for all future RCRA permitting at Hanford in accordance with provisions of the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement). The draft permit is currently undergoing public comment assessment and incorporation of those comments by Ecology.

#### Groundwater Monitoring

Fifty groundwater monitoring wells were constructed at seven RCRA treatment, storage, and/or disposal (TSD) facilities to meet the Calendar Year (CY) 1992 Tri-Party Agreement milestone M-24-00. The RCRA groundwater monitoring wells were constructed at the following TSD facilities in CY 1992: 216-S-10 Pond and Ditch (three wells), low level Burial Grounds (18 wells), 216-A-29 Ditch (four wells), 216-B Pond system (seven wells), 100-N Facilities (four wells), single shell tanks (10 wells), and 216-100-D Ponds (four wells). All well locations were approved by Ecology prior to drilling.

The U.S. Department of Energy, Richland Field Office (RL) is discussing strategies with Ecology for completing Tri-Party Agreement Milestone M-24-00. Over the past few years more than 250 RCRA shallow groundwater monitoring detection wells have been drilled around several of the TSD facilities. These systems are nearing completion and therefore, the technical need for the rate of drilling (50 wells per year) as stated in the Tri-Party Agreement Milestone M-24-00 needs to be revised.

### CLEAN AIR ACT (CAA)

#### Prevention of Significant Deterioration

The nitrogen oxide emissions from the Hanford Site chemical processing facilities (Plutonium-Uranium Extraction (PUREX) Facility and  $UO_3$  Plant) are permitted under the Prevention of Significant Deterioration (PSD) program within the Clean Air Act (CAA). Operations during this period were in compliance with the permit. With cessation of all cladding removal and fuel dissolution at the PUREX facility in 1989, nitrogen oxide emissions from that facility have essentially ceased. The  $UO_3$  Plant has not operated during 1991 or 1992, so it has provided negligible emissions as well.

#### Compliance with the Revised 40 CFR 61 Emission Measurement Requirements

The Hanford Site continues to both assess its existing radioactive air emissions measurement systems and work with the U.S. Environmental Protection Agency (EPA) Region-10 to determine which facilities require measurement according to EPA design criteria. The Site continues to conduct the assessments and discussions with EPA in response to a formal request for information issued by EPA on February 10, 1992. That request was issued under the EPA authority provided in Section 114 of the CAA. The request is for sufficient information to allow EPA to determine if the site is in compliance. The RL and EPA are also developing a federal facilities compliance agreement under which any measurement compliance actions determined necessary will be conducted.

### CLEAN WATER ACT (CWA)

Six permitted outfalls operated within their National Pollutant Discharge Elimination System (NPDES) permit. Two outfalls had instances of noncompliance. Iron in the N-Springs discharge was reported in January as exceeding the permit limit. An investigation indicated that the high iron result was caused by iron contamination (rust) within the sampling system. The other incident involved sample analysis protocol in March. The holding time specified by 40 CFR 136 was exceeded for the sample drawn to analyze for total suspended solids in the filter backwash effluent at K Area.

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Lawsuit Filed

The Heart of America Northwest, lawsuit filed on April 7, 1992 alleges violations of the Clean Water Act due to discharges to soil that is hydrologically connected to surface waters without first obtaining an NPDES permit.

SAFE DRINKING WATER ACT (SDWA)

There were no new compliance issues identified regarding the SDWA from January 1, 1992 through April 1, 1992.

TOXIC SUBSTANCE CONTROL ACT (TSCA)

Radioactive PCB Waste Management

Radioactively contaminated waste with greater than or equal to 50 ppm polychlorinated biphenyls (PCBs) has been received from approved offsite DOE activities for storage in the Hanford Central Waste Complex. A draft compliance agreement for the storage of radioactive PCB waste is being prepared and is projected to be transmitted to the Environmental Protection Agency (EPA), Region 10 in mid-1992 as a basis for negotiation. This agreement, between RL and EPA is intended to allow the acceptance and storage of radioactive PCB waste at the Hanford Central Waste Complex until an adequate disposal or treatment technology/capacity is available and the accumulation of the stored waste is eliminated.

FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA)

There were no new compliance issues identified regarding the FIFRA from January 1, 1992 to April 1, 1992.

ENDANGERED SPECIES ACT

There were no new compliance issues identified regarding the Endangered Species Act from January 1, 1992 to April 1, 1992.

NATIONAL HISTORIC PRESERVATION ACT

There were no new compliance issues identified regarding the National Historic Preservation Act from January 1, 1992 to April 1, 1992.

## 2. CURRENT ISSUES AND ACTIONS

### LIQUID EFFLUENT CONSENT ORDER

The consent order, DE 91NM-177 was signed December 23, 1991 by RL and WDOE regulating Hanford Site liquid effluent discharges. In accordance with terms of the order, sampling and analysis plans have been submitted to Ecology for four Project W-049H effluent streams: 2101-M Laboratory wastewater, T-Plant wastewater, 222-S Laboratory wastewater, and the B-Plant chemical sewer. Additional commitments met included eliminating contamination control water discharges to 216-U-14 ditch, and submission of a plan to reroute 1325-N effluent to surface waters following best available technology/all known available and reasonable methods of prevention, control and treatment implementation.

### HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER

The following is a summary of the more significant compliance events pursuant to the Tri-Party Agreement:

- Construction of the 2724-W laundry effluent wastewater treatment project was completed.
- A date has been established for the submittal of a RCRA Part B permit application for the B Plant.
- Milestone M-14-00 "Complete construction and initiate operations of a low-level mixed waste laboratory" was not completed as originally established. The DOE determined that analytical needs at the Hanford Site would be better satisfied through the use of commercial laboratory facilities. A change package to revise the milestone was submitted to Ecology and the EPA. This change was rejected and a penalty was assessed. A one year trial period to determine if milestones can be met with laboratory contractors was established.
- Schedules were submitted for two liquid effluent treatment/disposal facilities to be constructed at the Hanford Site.
- The Aggregate Area Management Study Report for the Z-Plant waste management area including all source term operable units with "200-ZP" designations was submitted.
- Interim stabilization of four single-shell tanks (Milestone M-05-03, September 1991) remains on hold. Five single shell-tanks have pumps in them and pumping is nearly complete, but as of June they were not being pumped pending resolution of an unreviewed safety question on criticality.

## WASTE MINIMIZATION

The EPA Biennial Waste Minimization Report was completed in March 1992, and progress continues on the DOE Waste Reduction report and the Source Reduction and Recycling Report. Methods to implement Presidential Order 12780, which requires recycling programs at federal facilities and programs to purchase recycled products, are currently being investigated by Procurement.

## TIGER TEAM UPDATE

The Tiger Team identified 84 findings related to Environmental issues at the Hanford Site in July 1990. Progress is being made on the Finding Response and Planned Actions (FRPAs) to resolve these issues and are being carefully tracked. As of March 25, 1992 there were 50 FRPAs awaiting verification by Quality Assurance, 8 FRPAs had not yet been submitted for verification to Quality Assurance, and 27 FRPAs were still open.

## HANFORD WASTE VITRIFICATION PLANT (HWVP) PROJECT

During the first quarter of 1992 negotiations took place between the participants in the Tri-Party Agreement to establish new milestones for the Hanford Waste Vitrification Plant (HWVP) project. As a results of the negotiations, five (5) new interim milestones and one target milestone were identified and are in the approval process including:

- Initiate construction of the canister storage building or multi-purpose storage building - February 1993.
- Initiate construction of the vitrification building foundation - March 1993.
- Complete vitrification building and HWVP detailed design - June 1994.
- Initiate installation of vitrification building mechanical equipment and piping - August 1994.
- Initiate installation of vitrification building electrical and instrumentation system - November 1994.

## New Target Milestone

- Initiate procurement of the melter - November 1993

#### HANFORD SITE WASTE SAFETY ISSUES

In the past several months scientists and engineers from Westinghouse Hanford Company, Pacific Northwest Laboratories, Argonne National Laboratory, Georgia Tech and Los Alamos National Laboratory, along with various consultants have studied methods to prevent 101-SY from periodically releasing large amounts of flammable gas. Extensive modeling of the behavior of the tank has proceeded to the point that various methods are now planned to be tested in the tank. Methods that will be tested include dilution, mixing, heating, ultrasonic agitation and/or any combination of these four methods.

Two complete core samples were taken from Tank 101-SY during the first quarter of 1992. Results from the chemical analyses further understanding of the complex chemistry of this tank.

On April 28, 1992, Westinghouse Hanford Company (WHC) declared criticality safety at the Hanford High Level Waste Tank Farms to be an Unreviewed Safety Question (USQ). This condition was declared because Safety Analysis Reports for single- and double-shell tanks state that the probability of a criticality is "not credible." WHC had recently determined that this conclusion was not supported by technical data. Conservative operating limits have been placed on the tanks by RL. WHC is preparing an action plan that will resolve the USQ by validating existing data, in conjunction with newly acquired data pertaining to the contents of each tank.

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